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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/562,012

Applicant(s)

FURUSHIMA ET AL.

Examiner

JOHN D. PHAM

Art Unit

2184

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date 1 August 2008
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims:

1. Claims 5-12 are pending in this Office Action.

Claims 5-8 are amended.

Claims 9-12 are new.

Claims 1-4 are cancelled.

The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. The Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 1 August, 2008 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claimed invention is directed to non-statutory subject matter. Claims 5-6 and 9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 5-6 and 9 cites the limitation of a controller. However, the claims lack necessary physical articles or objects to constitute a machine or manufacture within the meaning of 35 U.S.C.. In view of the below cited MPEP section the claims are non-statutory because they are functional descriptive material per se.

MPEP 2106.01 [R-6]

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).)

Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se, 33 F.3d at 1360, 31 USPQ2d at 1759.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zifferer et al (US Pat. No. 5349518) in view of Beck et al (US Pub. No. 2002/0147505) further in view of Jungleib (US Pat. No. 5886274).

Referring to claim 5, Zifferer et al teach:

An apparatus comprising of an instruction table for storing instructions and corresponding input/output type of parameters for the instruction (Zifferer et al, column 3, lines 51-57; and column 7, lines 25-37, many table storing instruction and input/output addresses using symbol as the key to search);

A search/determination means for searching the instruction table for an instruction in a code portion of a sequence program selected as diversion data from existing diversion-source sequence program to determine a corresponding input/output type of a parameter of the instruction (Zifferer et al, column 8, lines 25-40, using symbols from the existing program to search the table to retrieve "Type" and "Mode");

A search result creating/storing means for creating and storing a search result table by combining the address in the code in the selected portion of the sequence program, with the determined corresponding input/output type (Zifferer et al, column 7, lines 50 to column 8 line 40, based on existing program user creates database file contain symbols wherein maintain cross reference for the instructions and addresses and types);

Zifferer et al fail to teach a component data creating means to create variable table data table by replacing determined corresponding input/output type with variable

name, and for creating component data by adding corresponding variable names to variables and to circuit information.

However, Beck et al teach constructing a symbolic input-output type variable (Beck et al, paragraph [0019], each variable has an identification field and type) for automatically replacement of input/output symbolic variables with exact address.

Zifferer et al and Beck et al are analogous art because they are from methods of developing ladder logic program for Programmable Logic Controller (PLCs).

At the time of the invention, it would have been obvious for one of ordinary skill in the art, having the teaching of Zifferer et al and Beck et al, to modify the ladder logic programming of Zifferer et al to include the table of symbolic variable of input/output object type of Beck et al because the modification will automatically replace the symbolic variables by constructing the exact input/output address of each symbolic variable.

The motivation of doing so would have been obvious because the programming an automation application capable of manipulating data exchange between an application and input/output modules in a symbolic form and allow the program to be written independently with the automation equipment (Beck et al, paragraph [0018], lines 3-8).

Therefore, it would have been obvious to combine Zifferer et al with Beck et al to obtain the invention as specified in claim 5.

As to claim 6, Zifferer et al teach:

The peripheral device for the programmable logic component according to claim 5, further comprising: a sequence program storing means for storing into a component storage the created component data as a sequence program component (Zifferer et al, column 2, lines 47-54, allocate storage space for sequence components file);

A sequence component displaying device for displaying the sequence program component stored in storage component (Zifferer et al, column 3, lines 46-50, a list of predefined symbol display);

A sequence program component selecting means for selecting a desired sequence program component from the sequence program component displayed by the sequence program component displaying device (Zifferer et al, column 3, lines 48-56, Quick Search Option displayed to the user to select symbols from the predefined symbol list).

Regarding claims 5-6, the combined Zifferer et al/Beck et al teach a system and method for creating sequence program for programmable controller with automatic internal addresses replacement (Zifferer et al, column 3, lines 34-40) and automatic input/output addresses replacement (Beck et al, paragraph [0013], lines 3-6).

The combined Zifferer et al/Beck et al fail to teach the ladder editor has a sequence program diversion means for diverting the selected sequence program component into a new sequence program.

However, Jungleib teaches a sequencer editor preferably allow users to copy and paste a program sequence (Jungleib, column 7, lines 44-47).

The combined Zifferer et al/ Beck et al and Jungleib are analogous art because they are from method of ladder logic programming for Programmable Logic Controller.

At the time of the invention, it would have been obvious for one of ordinary skill in the art, having the teaching of the combined Zifferer et al/Beck et al and Jungleib, to modify the ladder programming editor system described by the combined Zifferer et al/Beck et al to include the feature copy and paste of Jungleib because the later ladder programming editor will allow user to modify of an infinite variety of input sequence program.

The motivation for doing so would have been obvious because user or programmer has the capability of modifying of an infinite variety of existing sequence program (Jungleib, column 2, lines 17-21).

Therefore, it would have been obvious to combine the Zifferer et al/Beck et al with Jungleib to obtain the invention as specified in claim 5-6.

Referring to claim 7, Zifferer et al teach:

A method of creating a sequence program comprising:

A search/determination step of searching a instruction table for storing instructions, for an instruction in a code in a portion of a sequence program, to determine corresponding input/output type parameter of the instruction (Zifferer et al, column 8, lines 25-54 , a search step in two ways for symbols type or mode and for addresses);

A search result creating/storing step of creating and storing a search result table by combining the determined corresponding input/output type, with an address in the code in the selected portion of the sequence program (Zifferer et al, column 7, lines 50 to column 8 line 40, based on existing program user creates database file contain symbols wherein maintain cross reference for the instructions and addresses and types);

Zifferer et al fail to teach a component data creating step to create variable table data table by replacing input/output type with variable name, and of creating component data by adding the corresponding variable names to variables and to circuit information.

However, Beck et al teach a step of constructing a symbolic input-output type variable (Beck et al, paragraph [0019], lines 1-7, each variable has an identification fields and type).

Zifferer et al and Beck et al are analogous art because they are from methods of developing ladder logic program for Programmable Logic Controller (PLCs).

At the time of the invention, it would have been obvious for one of ordinary skill in the art, having the teaching of Zifferer et al and Beck et al, to modify the method of ladder logic programming of Zifferer et al to include a step of constructing the table of symbolic variable of input/output object type of Beck et al because the modification will automatically replace the symbolic variables by constructing the exact input/output address of each symbolic variable.

The motivation of doing so would have been obvious because the method of programming an automation application can be capable of manipulating data exchange

between an application and input/output modules in a symbolic form and allow the program to be written independently with the automation equipment (Beck et al, paragraph [0018], lines 3-8).

Therefore, it would have been obvious to combine Zifferer et al with Beck et al to obtain the invention as specified in claim 7.

As to claim 8, Zifferer et al teach the program creating method of claim 7, the peripheral device for the programmable logic controller, the method further comprising:

A sequence program component storing step for storing into component storage the created component data as sequence program component (Zifferer et al column 2, lines 49-54, allocate storage space for database files or tables);

A sequence component displaying step of displaying the sequence component program stored in the component storage (Zifferer et al, column 3, lines 48-50);

A sequence programming selecting step for selecting a desired sequence program component from the sequence program component displayed in the sequence program displaying step (Zifferer et al, column 3, lines 48-50, Quick Search option displayed for select symbol or a sequence program component from a predefined list).

Regarding claims 7-8, the combined Zifferer et al/Beck et al teach a method for creating sequence program for programmable controller with automatic internal addresses replacement (Zifferer et al, column 3, lines 34-40) and automatic input/output

addresses replacement (Beck et al, paragraph [0013], lines 3-6, replace symbolic input/output variables).

The combined Zifferer et al/Beck et al fail to teach the ladder editor has a sequence program diversion means for diverting the selected sequence program component into a new sequence program.

However, Jungleib teaches a sequencer editor preferably allow users to copy and paste a program sequence (Jungleib, column 7, lines 44-47).

The combined Zifferer et al/ Beck et al and Jungleib are analogous art because they are from method of ladder logic programming for Programmable Logic Controller.

At the time of the invention, it would have been obvious for one of ordinary skill in the art, having the teaching of the combined Zifferer et al/Beck et al and Jungleib, to add the copy and paste capability to the method of ladder programming described by the combined Zifferer et al/Beck et al to include a step of copy and paste of Jungleib because the later method of ladder programming will allow user to modify of an infinite variety of existing sequence program.

The motivation for doing so would have been obvious because user or controller logic programmer has the method of modifying of an infinite variety of existing sequence program (Jungleib, column 2, lines 17-21).

Therefore, it would have been obvious to combine the Zifferer et al/Beck et al with Jungleib to obtain the invention as specified in claim 7-8.

Regarding claim 9, Zifferer et al teach:

The peripheral device for the programmable logic controller according to claim 5, wherein the input/output types of the parameters for the instructions comprise an input type, an output type, and an internal type (Column 10, lines 47-61, input and output type).

Regarding claim 10, Zifferer et al teach:

The program creating method according to claim 7, for the peripheral device for the programmable logic controller, wherein the input/output types of the parameters for the instructions comprise an input type, an output type, and an internal type (Column 10, lines 47-61, input and output type).

Regarding claim 11, Zifferer et al teach:

The peripheral device for the programmable logic controller according to claim 5, wherein a user selects the portion of the sequence program from the existing diversion-source sequence program being displayed (Column 13, lines 30-45, user select a portion of sequence program).

Regarding claim 12, Zifferer et al teach:

The program creating method according to claim 7, for the peripheral device for the programmable logic controller, the method further comprising a user selecting the portion of the sequence program from the existing diversion-source sequence program being displayed (Column 13, lines 30-45, user select a portion of sequence program).

Response to Arguments

Applicant's arguments filed on May 8, 2008, have been fully considered but they are not persuasive. The reasons are set forth below.

The Applicant Argument 1

Zifferer, however, fails to correspond input/output ~ of parameters for instructions, with the instructions.

In response, the examiner respectfully submits:

Zifferer teach "type" of file contain the same type of variable (Zifferer, column 8, lines 25-40). There are input and output module, the type of variables or symbols associates with type of module.

The Applicant Argument 2

Zifferer does not disclose that the address or symbol that the database file 384 is searched against is from an existing diversion-source sequence program.

In response, the examiner respectfully submits:

Zifferer teaches the symbols is searched against the existing source sequence program because the program file number and the rung number indicate where the instruction and addresses are in the existing sequence program (Column 7, lines 25-39).

The Applicant Argument 3

Each record in the cross-reference file 398, however, comprises a PLC address 402 (see col. 7, line 35 of Zifferer), rather than an address in the code.

In response, the examiner respectfully submits:

Zifferer teaches the PLC address is the same as attached address to the symbol. Notice that Zifferer use the same number 388 for both PLC address and attached address (Zifferer, column 7, lines 14-31).

The Applicant Argument 4

Applicant respectfully submits that input/output types are not the same as the symbolic input-output variables 100 according to Beck.

In response, the examiner respectfully submits:

Beck teaches input/output type of the variable (Beck, see Fig.1, table of variables has type column; and paragraph [0019], lines 1-7, variable has identification and type for identification purposes).

The Applicant Argument 4

Jungleib does not relate to a program sequence. Furthermore, Jungleib fails to teach or suggest a detailed description of diverting, such as what to divert, where to divert into, etc.

In response, the examiner respectfully submits:

Jungleib teaches an original or existing sequence file (Jungleib, column 7, lines 49-52, music sequence data recorded and stored as raw musical data). The sequence editor enable composer to edit raw music data or sequence files, the "copy" function allow composer to copy a portion of the existing sequence and the "paste" function allows composer to place an existing sequence into another sequence or a new sequence.

The Applicant Argument 5

Applicant respectfully submits that there is no apparent reason why a person of ordinary skill in the art would combine Jungleib with Zifferer.

In response, the examiner respectfully submits:

Zifferer teaches a sequence program editor used as tool for editing sequence program (Zifferer, column 6, lines 46-50). Jungleib also teaches a sequence program editor for editing sequence program (Jungleib, column 7, lines 39-47). Therefore, Zifferer and Jungleib are analogous art because they are both related to sequence program editing tool.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN D. PHAM whose telephone number is (571)270-1590. The examiner can normally be reached on Monday-Friday 8:30AM - 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Henry Tsai can be reached on 571-272-4176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. D. P./
Examiner, Art Unit 2184